F1-142

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July 25, 1997

Kate Hansel
CALFED BAY - DELTA PROGRAM
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

SUBJECT: Firebaugh Canal Water District Proposal

Dear Ms. Hansel:

Attached are ten (10) copies of the Firebaugh Canal Water District Proposal for the CALFED Bay-Delta Program, 1997 Category III, Ecosystem Restoration Projects and Programs.

Please let us know if you have any questions.

Very truly yours,

Roger L. Reynolds

RLR/p

Enclosures

F1-142

FIREBAUGH CANAL WATER DISTRICT

Tailwater/Tilewater Separation Project

PROPOSAL FOR
CALFED BAY-DELTA PROGRAM
1997 CATEGORY III

ECOSYSTEM RESTORATION
PROJECTS AND PROGRAMS

JULY 25, 1997

Prepared By:

Summers Engineering, Inc.
Consulting Engineers
Hanford, California

I. Executive Summary

a. Project Title and Applicant Name:

Tailwater/Tilewater Separation Project
Firebaugh Canal Water District

b. Project Description and Primary Biological/Ecological Objectives:

The Firebaugh Canal Water District is a 22,000 acre portion of the 97,000 acre Grassland Basin Drainage Area in the San Joaquin Valley bounded by Interstate 5 and the cities of Dos Palos and Mendota. This area has historically discharged subsurface tilewater and tailwater to the San Joaquin River. The proposed project involves the construction of a parallel tailwater recovery system which would allow the separation of tailwater and subsurface drainage water (tilewater) into separate systems. This would allow the tilewater to continue to be discharged as it presently does into the San Luis Drain but will allow the surface tailwater runoff to be recirculated and reused by District farmers.

The tailwater and tilewater separation project will reduce the amount of drainage water that would be discharged to the San Joaquin River including the tailwater component which tends to be high in suspended solids and turbidity. The remaining drainage component (the subsurface drainage water) would be reduced in quantity and more easily managed for discharge to the San Joaquin River to meet the load reductions necessary for the Grassland Bypass Project. This will result in decreased loads to the Sacramento-San Joaquin Delta.

c. Approach/Tasks/Schedule

The proposed project involves the construction of new tailwater ditches, pipelines, and small pumping stations adjacent to existing open drains and tailwater ditches within the District. The project is not intended to expand or increase the drainage capacity of the District but will allow for the separation of subsurface and surface drainage waters. The District has been reviewing various options to separate tilewater and tailwater. During the spring of 1997, the District installed approximately 18,000 feet of PVC pipeline and subsurface drainage pipeline to separate some of the District's existing tilewater from its tailwater runoff. If funding

becomes available through CALFED, the District will be able to implement this separation project during the next year. This would involve finalizing the project design and contracting out the construction work the District would not be able to complete with their own work force.

d. Justification for Project and Funding by CALFED

The Grassland Bypass Project discharges drainage water to the San Joaquin River. This drainage water has historically included subsurface tilewater and tailwater runoff. The project has mitigation measures including selenium load target reductions which need to be met by the participating agencies. This project will allow the District to reduce its drainage water discharge to the San Luis Drain which will result in reduced discharges to the Sacramento-San Joaquin Delta.

e. Budget Costs and Third Party Impacts

The total project costs are estimated at $1,800,000. Third party impacts include the requirement that individual farmers will have to install tailwater recovery facilities to recirculate tailwater back into their existing irrigation supplies.

f. Applicant Qualifications

Summers Engineering, Inc. as District Engineer, will prepare all required design drawings in coordination with the District manager.

g. Monitoring and Data Evaluation

Tabulation of the drainage load quantities discharged from the District will be monitored and provided to verify the reduction and overall drainage flows from the Firebaugh Canal Water District.

h. Local Support/Coordination with other Programs/Compatibility with CALFED objectives

The project will be coordinated and reviewed with the other drainage entities involved with the Grassland Bypass Project. The overall reduction in agricultural drainage flows will improve water quality in the San Joaquin River and San Joaquin Delta.

II. Title Page

a. Title of Project: Tailwater/Tilewater Separation Project

b. Name of Applicant; address; phone/fax:

Firebaugh Canal Water District
2412 Dos Palos Road
Post Office Box 97
Mendota, California 93640

(209) 659-1245 Fax (209) 655-3658

c. Type of Organization and Tax Status: The Firebaugh Canal Water District is a public tax exempt district organized in 1987 under the provisions of the California Water District Law.

d. Tax Identification Number:

Federal 94-0474870
State 007-0622-6

e. Technical and Financial Contact Person:

Jeff Bryant, Manager
Firebaugh Canal Water District
2412 Dos Palos Road
Post Office Box 97
Mendota, California 93640

(209) 659-1245 Fax (209) 655-3658

f. Participants: San Luis & Delta Mendota Water Authority, Drainage Activity Agencies.

g. RFP Project Group Type: Group 1 Construction Project to improve water quality.

III. Project Description

a. Project Description and Approach

The Firebaugh Canal Water District is a member of the Grassland Basin Drainage Activity (see Figure 1) under the umbrella of the San Luis and Delta Mendota Water Authority. This is part of a 97,000 acre drainage area in the San Joaquin Valley bounded by Interstate 5 and the cities of Dos Palos and Mendota that has historically discharged subsurface tilewater and tailwater to the San Joaquin River. Recently, this entity implemented the Grassland Bypass Project which utilizes a portion of the San Luis Drain to convey drainage water to the San Joaquin River and to bypass the grassland wetlands area for environmental benefit purposes. Historically this discharge of drainage water included a combination of subsurface tilewater and surface tailwater. The Firebaugh Canal Water District is a 22,000 acre portion within the Grassland Basin Drainage Area. The District project includes the construction of additional tailwater ditches and drainage pipelines to separate the tailwater and tilewater within the District thereby reducing the drainage quantity to be managed and controlled by conserving the water supply.

Through the years, subsurface interceptor drains have been installed on many of the farms in the District. Drainage sumps have been installed at the low end of the fields. For most sumps, pumps have been installed which discharge the subsurface drainage water into District operated and maintained open drains. Excess irrigation water flowing to the low end of the irrigated field, if not recovered, also flows as tailwater into the District's existing open drains. This water commingles with the subsurface drainage water and flows out of the District at discharge points DJ-1 and FC-1 (See Figure 2).

The proposed project involves the construction of a parallel tailwater recovery system which would allow the separation of tailwater and subsurface drainage water into separate systems. This would allow the subsurface drainage water to continue to be discharged, as it presently does, to discharge points DJ-1 and FC-1 and thence on into the San Luis Drain, but will allow the surface tailwater runoff to be recirculated and reused by District farmers on their own fields.

b. Location and/or geographic boundaries of project

The location of the District is indicated on Figure 1. The proposed new tailwater recovery facilities and subsurface drains are indicated on Figure 2. The Firebaugh Canal Water District is located in Fresno County. The proposed collection systems are a combination of new drains, recovery pumps, and pipeline construction. In some locations, it is assumed that the existing deep drains will be filled in and new tailwater ditches excavated. Tailwater recovery pumps would be installed to pump tailwater back into existing irrigation canals or for reuse by the adjacent farmer.

c. Expected benefit(s)

The drainage discharge from the Grassland Basin Drainage Area contributes salt, selenium, and turbidity to the San Joaquin River Delta. This is an historic discharge and has occurred for many years. It is expected that the discharge will decrease with the implementation of the Grassland Bypass Project and the mitigation measures related to that project including selenium load target reductions. The tailwater and tilewater separation project will reduce the amount of drainage water that would be discharged to the San Joaquin River including the tailwater component which tends to be high in suspended solids and turbidity. The remaining drainage component (the subsurface drainage water) would be reduced in quantity and more easily managed for discharge to the San Joaquin River to meet the load reductions necessary for the Grassland Bypass Project which would result in decreased loads to the Sacramento-San Joaquin Delta.

d. Background and Biological/Technical Justification

Under existing conditions, tailwater and subsurface drainage in the project area are jointly discharged from the District at discharge points DJ-1 and FC-1 as indicated on Figure 2. Water quality analyses were made during August 1996 to verify the existing quality of the combined subsurface drainage and tailwater in an existing deep drainage channel of the District. A second water sample was taken and an analysis performed after the subsurface drainage discharges into the drain had been plugged and the tailwater flows were allowed to continue for one day at a flow of approximately 7 to 10 cubic feet per second.

Following are the results of this analysis:

EXISTING DRAIN WATER QUALITY FIELD TEST

Test	Electrical Conductivity (μmhos/cm)	Boron (mg/l)	Selenium (mg/l)	Molybdenum (mg/l)
Subsurface Drainage & Tailwater	1,460	1.25	0.02	0.13
Tailwater Only	552	0.10	< 0.001	0.02

The above analysis determined that the existing tailwater flows in the drainage ditches could be recycled and used for irrigation by farmers in the District. This would help improve water management and on-farm irrigation efficiencies.

During the spring of 1997, the Firebaugh Canal Water District installed approximately 18,000 feet of PVC pipeline and subsurface drainage pipelines at a cost of approximately $150,000 to separate some of the District's existing tilewater collection systems from its tailwater runoff.

e. Proposed Scope of Work

The District plans to continue the installation of tilewater and drainage water separation facilities as funds are available. Figure 2 indicates the proposed location for installation of new tailwater ditches to separate the tailwater flow from existing subsurface drainage water in existing drains. The local farmers will be required to recirculate the tailwater from the newly constructed tailwater ditches onto their adjacent lands. In some locations it is assumed that the existing deep drains would be filled in and new tailwater ditches excavated. Some survey work will be required to verify existing cross sections and to estimate the quantity of fill required or to accurately estimate the excavation quantities required for the new drains and tailwater ditches.

f. Monitoring and Data Evaluation

Existing tabulations of the drainage flow quantities discharged from the District at FC-1 and DJ-1 will be monitored and provided to verify the reduction in overall drainage flows eventually reaching the San Luis Drain from the Firebaugh Canal Water District. This data tabulation will be

coordinated and reviewed with the other drainage entities involved with the Grassland Bypass Project.

g. Implementability

The proposed project facilities, new tailwater ditches, pipelines, and small pumping stations will be located adjacent to existing open drains and tailwater ditches within the Firebaugh Canal Water District. The pipelines or ditches are not intended to expand or increase the drainage capacity of the District but will allow for the separation of subsurface and surface drainage waters. The District has determined that the proposed project would be Categorically Exempt in accordance with the California Environmental Quality Act, Public Resources Code, Section 15301, which categorically exempts projects ". . . involving negligible or no expansion of use beyond that previously existing . . . ".

IV. Costs and Schedule to Implement Proposal Project

a. Budget Costs

The attached Table 1 summarizes the estimate of cost to complete the proposed parallel tailwater recovery system project. The total project costs are estimated at $1,800,000. The estimate of cost was developed using current cost information from pipeline suppliers, pump suppliers, and miscellaneous appurtenances and from previous experience on work of a similar nature. An amount of 25% was added to the construction cost to cover contingencies, administration, and engineering for the project. The District will cover all future operation and maintenance expenses for the new pumps. The District has reviewed different options and feels the proposed project is the most reasonable and cost effective to separate tilewater from tailwater.

TABLE 1
Firebaugh Canal Water District
Estimate of Cost
For Construction of Parallel Tailwater Recovery System

Item No	Work or Material	Quantity	Unit	Unit Price	Amount
1	Fill existing drains	94,000	Cubic Yards	$4.00	376,000
2	Excavate New Drains	83,000	Cubic Yards	$0.80	$66,400
3	Excavate New Tailwater Ditches	164,000	Cubic Yards	$0.80	$131,200
4	Remove Excavation Including Hauling	102,000	Cubic Yards	$3.50	$357,000
5	Furnish & Install (F & I) Tailwater Culverts			Lump Sum	$140,000
6	F & I Tailwater Recovery Pumps and Appurtenances	5	EA	$15,000	$75,000
7	F & I Recovery Pump 18" Discharge Pipe @ NE Cor Sec 24 12/12 to 3rd Lift Canal	8,500	Linear Feet	$25.00	$212,500
8	F & I Recovery Pump 10" Discharge Pipe @ W 1/4 Cor Sec 25 12/13 to 2nd Lift Canal	5,000	Linear Feet	$15.00	$75,000
			Construction Cost		$1,433,100
			25% Contingencies		$366,900
			Total Cost		$1,800,000

b. Schedule Milestones

If funds become available under the 1997 Category III CALFED BAY-DELTA PROGRAM, the District will finalize the design during the fall of 1997 and then bid the applicable portions of the project which they are unable to complete in-house. A phased construction program is anticipated using the District's earthwork equipment and existing work force supplemented with additional laborers and outside contractors as required to complete the project in the shortest time frame possible. The goal would be to complete the project in 1998.

c. Third Party Impacts

Anticipated third party impacts would be impacts to individual farmers within the District who would be required to install tailwater recovery facilities to recirculate the existing tailwater back into their existing irrigation supplies. The District will coordinate with the landowners in this regard, but some unanticipated third party impacts will occur.

V. Application Qualifications

The District Manager, Jeff Bryant, will be in direct control of the proposed project. Summers Engineering, Inc.(SEI), as District Engineer, will prepare all required design drawings and will coordinate with the Grassland Basin Drainers through the San Luis and Delta Mendota Water Authority. SEI's resume is attached. Joseph C. McGahan will be the Project Engineer and his resume is also attached.

RESUME

SUMMERS ENGINEERING, INC.

887 North Irwin Street
P. O. Box 1122
Hanford, CA 93232

HISTORY OF THE ENGINEERING FIRM

The civil engineering firm of Summers Engineering, Inc. (SEI), was established in April 1962. The firm's principal work has consisted of feasibility studies, water supply studies, groundwater investigations, drainage studies, environmental impact assessments, contract negotiations for both water supply and loans, the design, preparation of specifications and supervision of construction of pipelines, wells, canals, drains, pumping plants and miscellaneous municipal facilities. SEI has provided project administration and inspection for several construction projects. Other work has consisted of the design of small airports, various reinforced concrete structures, roadways, small building design and site planning.

SEI is on a retainer basis to numerous water agencies and provides reports on the feasibility, financial analysis, and the design of water resource facilities, particularly pipelines, irrigation and drainage works, and the rehabilitation of existing facilities.

As consultants to municipalities, SEI provides general engineering services including the design of water treatment plants, water transmission facilities, the review of parcel and/or subdivision maps, and the design review and field inspection for drainage, sewer, and water facilities for proposed developments.

SEI provides consulting services to numerous irrigation and water districts.

Consultant to federal agencies on water resources matters.

The firm consists of five registered civil engineers, one engineering assistant, two draftsmen, and secretarial staff.

JOSEPH C. McGAHAN
Principal Engineer

RESUME

Registrations Registered Civil Engineer California No. 26307

Education California State Polytechnic College, 1970, B.S.
California Institute of Technology, 1971, M.S.

History Joseph C. McGahan has spent 26 years working in the field of irrigation, drainage, and municipal water supply engineering in California and Arizona.

Responsibilities and affiliations Responsible for seeing that the firm's projects are completed in a timely manner. Coordinates studies and the design on water transmission pipeline projects. Responsible for irrigation and drainage studies for numerous clients. The work has included the preparation of feasibility reports, economic analyses, structural design, hydraulic design, preparation of specifications and supervision of construction. Other work includes the design of water treatment facilities for municipal purposes.

Presented various papers and presentations to groups nationwide regarding water quality non-point source issues.

Member of the American Water Works Association, American Society of Civil Engineers, and the U. S. Committee on Irrigation and Drainage.

VI. Compliance with standard items and conditions

As a public water district, the proposed public work construction will apparently require a Non-Discrimination Compliance and Non-Collusion form as outlined in the RFP Attachment D, Table D-1. The Non-Discrimination Compliance Statement, Item 8, and the Non-Collusion Affidavit, Item 11, are attached. The terms and conditions of items #9 and #11 appear acceptable but the actual format of each defines the FCWD as the "prospective contractor" or "bidder" for the public work to be completed under this program. If Category III funds are made available to FCWD the District will enter into a contract with a licensed contractor to complete the required construction work.

Item 8

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

Firebaugh Canal Water District

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

Jeff Bryant

OFFICIAL'S NAME

July 25, 1997

DATE EXECUTED

EXECUTED IN THE COUNTY OF

Fresno

PROSPECTIVE CONTRACTOR'S SIGNATURE

General Manager

PROSPECTIVE CONTRACTOR'S TITLE

Firebaugh Canal Water District

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

I-003139

Item 11

Agreement No. _____

Exhibit _____

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
~~BIDDER~~ Applicant AND SUBMITTED WITH ~~BID~~ Proposal FOR PUBLIC WORKS

STATE OF CALIFORNIA)
)ss
COUNTY OF Fresno)

Jeff Bryant, being first duly sworn, deposes and
(name)

says that he or she is General Manager of
(position title)

Firebaugh Canal Water District
(the bidder)

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: July 25, 1997 By _____
(person signing for bidder)

Subscribed and sworn to before me on

_____

_____
(Notary Public)

(Notarial Seal)

JURAT

State of CALIFORNIA
County of MERCED } ss.

Subscribed and sworn to (or affirmed) before me this 25 (Date) day of July (Month), 19 97 (Year), by

(1) Jeff Bryant (Name of Signer(s))

(2) N/A (Name of Signer(s))

S. Mussett (Signature of Notary Public)

S. MUSSETT
Commission # 1124385
Notary Public — California
Merced County
My Comm. Expires Jan 24, 2001

OPTIONAL

Though the information in this section is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document
Title or Type of Document: NON COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER SUBMITTED WITH BID FOR PUBLIC WORKS

Document Date: 7-25-97 Number of Pages: 1

Signer(s) Other Than Named Above: N/A

RIGHT THUMBPRINT OF SIGNER #1	RIGHT THUMBPRINT OF SIGNER #2
Top of thumb here	Top of thumb here

FIGURE 1

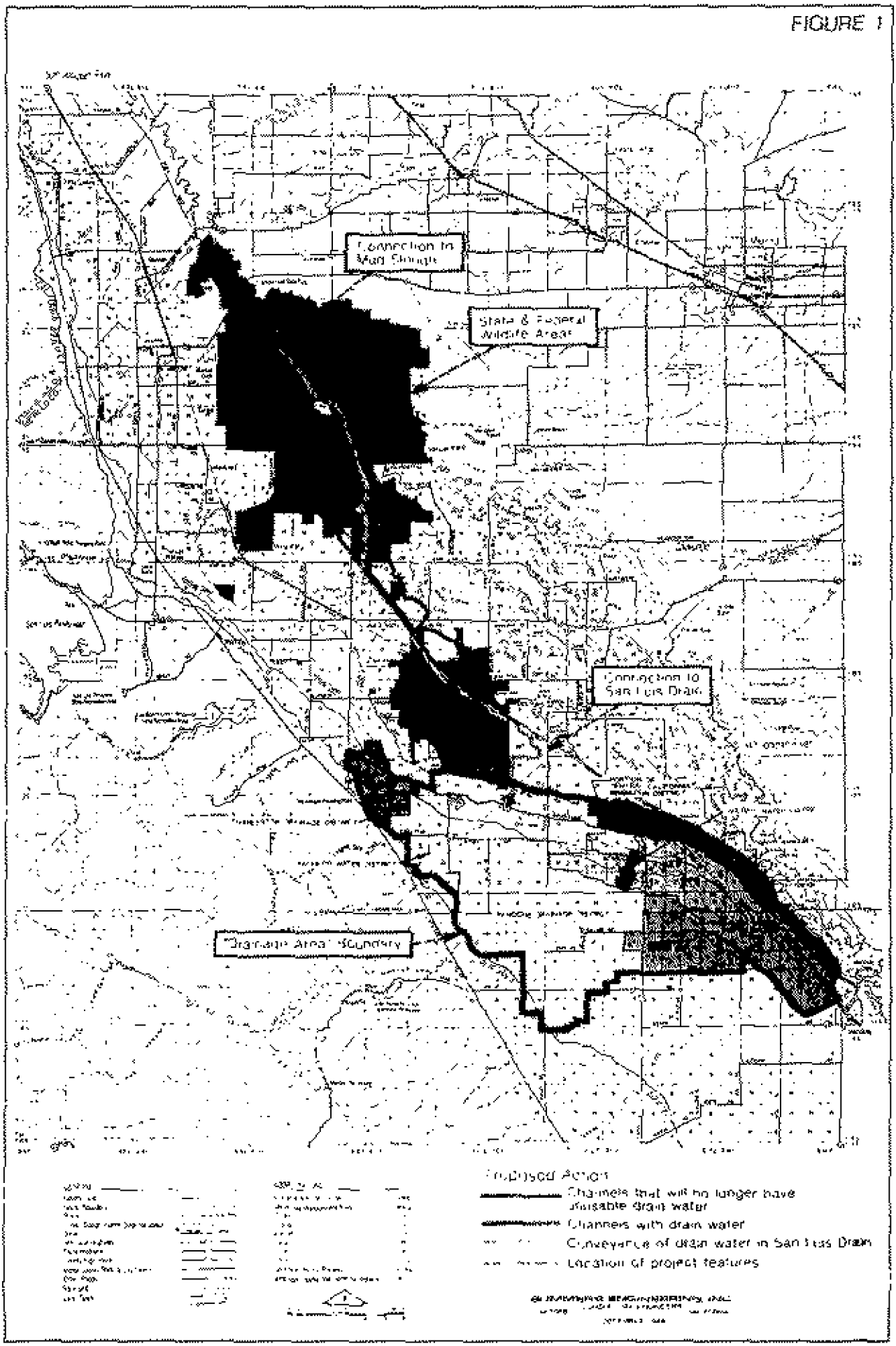
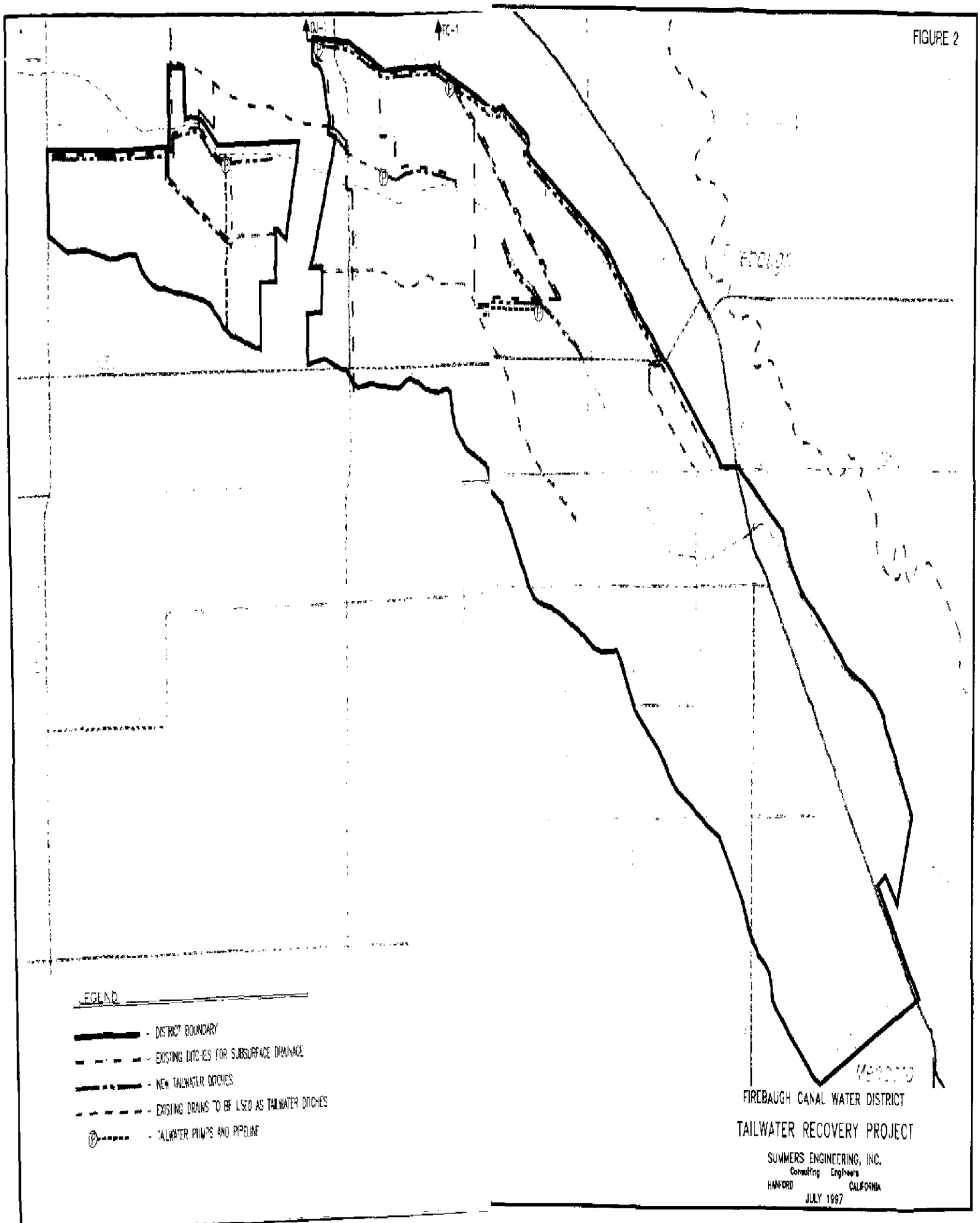

Connection to Mud Slough
State & Federal Wildlife Areas
Connection to San Luis Drain
Drainage Area Boundary
Proposed Action
Channels that will no longer have drainable drain water
Channels with drain water
Conveyance of drain water in San Luis Drain
Location of project features

FIGURE 2


DW-1
FC-1
EGLND
- DISTRICT BOUNDARY
- EXISTING DITCHES FOR SUBSURFACE DRAINAGE
- NEW TAILWATER DITCHES
- EXISTING DRAINS TO BE USED AS TAILWATER DITCHES
- TAILWATER PUMPS AND PIPELINE
FIREBAUGH CANAL WATER DISTRICT
TAILWATER RECOVERY PROJECT
SUMMERS ENGINEERING, INC.
Consulting Engineers
HANFORD CALIFORNIA
JULY 1997